

**DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT
FOR
AQUATIC RODENT DAMAGE MANAGEMENT
IN NORTH CAROLINA**

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS), Wildlife Services (WS) program responds to requests for assistance from individuals, organizations and agencies experiencing damage caused by wildlife. Ordinarily, according to APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management actions are categorically excluded (7 CFR 372.5(c), 60 Fed. Reg. 6000-6003, 1995). To evaluate and determine if any potentially significant impacts to the human environment from WS' planned and proposed program would occur, an environmental assessment (EA) was prepared. The EA documents the need for aquatic rodent damage management (ARDM) in North Carolina and assessed potential impacts of various alternatives for responding to damage problems. The EA analyzes the potential environmental and social effects for resolving beaver, muskrat and nutria damage related to the protection of resources, and health and safety on private and public lands in North Carolina. WS' proposed action is to implement an Integrated Wildlife Damage Management (IWDM) program on public and private lands in North Carolina. Comments from the public involvement process were reviewed for substantial issues and alternatives which were considered in developing this decision.

WS is the Federal program authorized by law to reduce damage caused by wildlife (Act of 1931, as amended (46 Stat. 1486; 7 U.S.C. 426-426c) and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988, Public Law 100-102, Dec. 27, 1987. Stat. 1329-1331 (7 U.S.C. 426c). Wildlife damage management is the alleviation of damage or other problems caused by or related to the presence of wildlife, and is recognized as an integral part of wildlife management (The Wildlife Society 1992). WS uses an Integrated Wildlife Damage Management (IWDM) approach, commonly known as Integrated Pest Management (WS Directive 2.105) in which a combination of methods may be used or recommended to reduce damage. WS wildlife damage management is not based on punishing offending animals but as one means of reducing damage and is used as part of the WS Decision Model (Slate et al. 1992, USDA 1997, WS Directive 2.201). The imminent threat of damage or loss of resources is often deemed sufficient for wildlife damage management actions to be initiated (U.S. District Court of Utah 1993). Resource management agencies and individuals have requested WS to conduct ARDM to protect human health and safety, agricultural and natural resources, property, and wildlife, including threatened and endangered (T&E) species in North Carolina. All WS wildlife damage management activities are in compliance with relevant laws, regulations, policies, orders and procedures, including the Endangered Species Act of 1973 and Clean Water Act.

Consistency

The analyses in the EA demonstrate that Alternative 1: 1) best addresses the issues identified in the EA, 2) provides safeguards for public health and safety, 3) provides WS the best opportunity to reduce damage while providing low impacts on non-target species, 4) balances the economic effects to

agricultural and natural resources, and property, and 5) allows WS to meet its obligations to government agencies or entities.

Monitoring

The North Carolina WS program will annually provide to the North Carolina Wildlife Resources Commission (NCWRC) the WS lethal take of target and non-target animals to help insure the total statewide harvest (WS and other take) does not impact the viability of target and non target wildlife species. In addition, the EA will be reviewed each year to ensure that it and the analysis are sufficient.

Public Involvement

Issues related to the proposed action were initially developed by an interdisciplinary team involving the NCWS, [REDACTED]. This Multi-agency team refined the issues and identified preliminary alternatives. The pre-decisional EA was prepared and released to the public for a 30-day comment period by a legal notice in the Winston-Salem Journal, the Asheville Citizens Times, the Raleigh News and Observer, the Charlotte Observer, the Fayetteville Observer, the Daily Advance, the Greensboro News and Record, the Gates County Index, the Beaufort Hyde News, and the New Bern Sun Journal. The pre-decisional EA was also mailed directly to agencies, organizations, and individuals with probable interest in the proposed program. A total of twenty comment letters were received from the public after review of the pre-decisional EA. All comments were analyzed to identify substantial new issues, alternatives, or to redirect the program. All letters and responses are maintained in the administrative file located at the North Carolina Wildlife Services Office, 6213-E Angus Drive, Raleigh, North Carolina 27617. Wildlife Services responses to specific comments and issues are included in Appendix A of this Decision and FONSI.

Major Issues

The EA describes the alternatives considered and evaluated using the identified issues. The following issues were identified as important to the scope of the analysis (40 CFR 1508.25).

- Effects on aquatic rodent species
- Effects on wetland habitats, plants and other wildlife species, including T&E species
- Effects on human and pet health and safety
- Impacts to stakeholders, including aesthetics
- Humaneness

Affected Environment

The proposed action will affect private and public lands in North Carolina including: agricultural, timber, and other rural lands; residential, commercial and other urban properties; state and federal roads and rights-of-way; railroads and rights-of-way; and lands inhabited by T&E species.

Objectives

To provide technical or direct assistance with aquatic rodent damage management to 100% of North Carolina resource owners and managers who request assistance from NCWS.

Alternatives That Were Fully Evaluated

The following five alternatives were developed by the Multi-agency Team to respond to the issues. Nine additional alternatives were considered but not analyzed in detail. A detailed discussion of the effects of the Alternatives on the issues is described in the EA; below is a summary of the Alternatives.

Alternative 1 - Fully Integrated Aquatic Rodent Damage Management for all Public and Private Land (No Action/Proposed Action). This alternative would incorporate an IWDM program utilizing any legal technique or method, used singly or in combination, to meet requester needs for resolving ARDM conflicts with beaver, muskrats and nutria. Aquatic rodents would be lethally removed under this alternative by WS, but not to the extent that statewide native wildlife populations would be negatively impacted. Cooperators requesting assistance would be provided with information regarding the use of effective non-lethal and lethal techniques. In many situations, the implementation of non-lethal methods are best implemented by land owner/manager and would be the responsibility of the requester to implement. This alternative would allow WS to respond to all requests and would meet the management objectives of this EA.

Alternative 2 - Only Lethal Aquatic Rodent Damage Management. Under this alternative, only lethal direct control activities and recommendations would be provided by WS to resolve aquatic rodent damage caused by beaver, muskrat and nutria. Aquatic rodents would be lethally removed under this alternative by WS, but not to the extent that statewide native wildlife populations would be negatively impacted. Requests for information regarding non-lethal management approaches would be referred to NCWRC, local animal control agencies, or private businesses or organizations. Individuals or agencies might choose to implement WS lethal recommendations, implement non-lethal methods or other methods not recommended by WS, contract for WS direct control services, use contractual services of private businesses, use volunteer services of private organizations, or take no action. In some cases, control methods employed by others could be contrary to the intended use or in excess of what is necessary. This alternative would not allow WS to respond to all requests, would not meet the management objectives of this EA, and would leave some members of the public without a means to reduce aquatic rodent damage.

Alternative 3 - Non-lethal Aquatic Rodent Damage Management. Under this alternative, only non-lethal direct control activities and recommendations would be provided by WS to resolve aquatic rodent damage caused by beaver, muskrat and nutria. Requests for information regarding lethal management approaches would be referred to NCWRC, local animal control agencies, or private businesses or organizations. Individuals or agencies might choose to implement WS non-lethal recommendations, implement lethal methods or other methods not recommended by WS, contract for WS direct control services, use contractual services of private businesses, use volunteer services of private organizations, or take no action. In some cases, control methods employed by others could be contrary to the intended use or in excess of what is necessary. WS would not be involved in lethal control actions. However, persons receiving non-lethal assistance could still resort to lethal methods that were available to them including shooting and trapping. Effects of lethal control would be variable dependent upon actions taken by affected resource owners. This alternative would not allow WS to respond to all requests, would not meet the management objectives of this EA, and would leave

some members of the public without a means to reduce aquatic rodent damage.

Alternative 4 - Technical Assistance Only. This alternative precludes any and all direct control activities by WS to resolve aquatic rodent damage caused by beaver, muskrat and nutria. Producers or any other entity directed at preventing or reducing aquatic rodent damage could conduct direct control activities in the absence of WS involvement. However, if requested, affected producers would be provided with TA information only. Impacts of this alternative would be variable dependent upon actions taken by affected resource owners. This alternative would allow WS to respond to all requests with TA, but would not meet the management objectives of this EA and would leave some members of the public without a means to reduce aquatic rodent damage.

Alternative 5 - No NCWS Aquatic Rodent Damage Management in North Carolina. This alternative would result in no assistance from WS in resolving aquatic rodent damage caused by beaver, muskrat and nutria. WS would not provide technical assistance or operational damage management services. All requests for ARDM would be referred to the NCWRC, local animal control agencies, or private businesses or organizations. Assistance may or may not be available from any of these entities. Impacts of this alternative would be variable dependent upon actions taken by affected resource owners. This alternative would not allow WS to respond to any requests, would not meet the management objectives of this EA, and would leave some members of the public without a means to reduce aquatic rodent damage.

Alternatives Considered but not Analyzed in Detail are the Following:

Eradication and Suppression

An eradication and suppression alternative would direct all NCWS aquatic rodent damage management efforts toward total elimination or suppression of these species.

Eradication of beaver or muskrat in North Carolina is not supported by NCWS or NCWRC. This alternative will not be considered by NCWS in detail because:

- NCWS opposes eradication of any native wildlife species.
- NCWRC opposes eradication of any native North Carolina wildlife species.
- The eradication of a native species would be extremely difficult if not impossible to accomplish, and cost prohibitive.
- Eradication of native species is not acceptable to most members of the public.

Suppression would direct NCWS program efforts toward managed reduction of aquatic rodent populations. To consider large-scale population suppression as a goal of the NCWS program is not realistic, practical or allowable under present NCWS policy.

Population stabilization through birth control.

Under this alternative, aquatic rodent populations would be managed by administering contraceptives to limit reproduction. Contraceptive measures for mammals can be grouped into four categories: surgical sterilization, oral contraception, hormone implantation, and immuno-contraception (the use of

contraceptive vaccines). These techniques would require that aquatic rodents receive either single, multiple, or possibly daily treatment to successfully prevent conception. An aquatic rodent contraceptive, chemosterilant or immuno-contraceptive, if delivered to a sufficient number of individuals, could temporarily suppress local breeding populations via natural mortality combined with reduced fecundity. However, treated aquatic rodents would continue to cause damage, and populations of dispersing aquatic rodents would probably be unaffected. Furthermore, at present, there are no chemical or biological contraceptive agents available or registered for aquatic rodents.

This alternative was not considered in detail because: (1) it would take a number of years of implementation before the aquatic rodent population would decline, and, therefore, damage would continue at the present unacceptable levels for a number of years; (2) surgical sterilization would have to be conducted by licensed veterinarians and would be extremely expensive; (3) it is difficult to effectively live trap or chemically capture the number of aquatic rodents that would need to be sterilized in order to effect an eventual decline in the population; and (4) no chemical or biological agents for contracepting aquatic rodents have been approved for use by state and federal regulatory authorities.

The use of contraceptives is not realistic, at this point, since there are no effective and legal methods of delivering contraceptives to aquatic rodents.

Compensation for Wildlife Damage Losses

The compensation alternative would direct NCWS program efforts and resources toward the verification of losses from aquatic rodents, and to providing monetary compensation for these losses. Analysis of this alternative in USDA (1997) shows that it has many drawbacks:

- Compensation would not be practical for public health and safety problems,
- It would require large expenditures of money to investigate and validate all losses, and to determine and administer appropriate compensation,
- Timely responses to all requests to assess and confirm losses would be difficult, and many losses could not be verified,
- Compensation would give little incentive to limit losses through other management strategies,
- Not all resource managers/owners would rely completely on a compensation program and unregulated lethal control would probably continue and escalate,
- Neither Congress nor North Carolina has appropriated funds for a compensation program.

Bounties

Bounties or payment of funds for killing animals (bounties) suspected of causing economic losses is not supported by NCWS because

- bounties are generally not effective in managing wildlife or reducing damage,
- circumstances surrounding take of animals is largely unregulated,
- no process exists to prohibit taking of animals from outside the damage management

- area for compensation purposes, and NCWS does not have the authority to establish a bounty program.

Relocation of Nuisance or Problem Aquatic Rodents

This alternative would direct NCWS to use relocation exclusively as a damage management technique.

Relocation of problem wildlife species is a technique that is sometimes used to alleviate wildlife damage problems. The success of a relocation effort, however, depends on the potential for the problem individuals to be captured efficiently and the existence of an appropriate relocation site (Nielsen 1988). Relocation may be appropriate in some situations when the species population is low, but aquatic rodents are abundant in much of the suitable habitat in North Carolina and relocation is not necessary for the maintenance of viable populations. Because beaver are abundant in North Carolina, beaver relocated into suitable habitat are very likely to encounter other beaver with established territories. Beaver are highly territorial and the newly introduced beaver, which are disoriented and at a disadvantage, are often viciously attacked and sometimes killed from these encounters (McNeely 1995). The survival of relocated animals is generally very poor due to the stress of relocation, so that in many cases an animal is released only to suffer mortality in a new environment (Craven 1992). Courcelles and Nault (1983) found that 50% (n=10) of radio-collared, relocated beaver died, probably from stress or predation resulting from the relocation.

Relocated beaver may also disperse long distances from the release site (Novak 1987a). Hibbard (1958) in North Dakota recorded an average dispersal distance by 17 relocated beaver to be about 9 miles and Denney (1952) in Colorado reported an average dispersal of 10.4 miles and a maximum dispersal of 30 miles for 26 transplanted beaver. Beaver relocated on streams and later recaptured (n=200) moved an average distance of 4.6 miles, and in lake and pothole relocations (n=272) moved an average of 2 miles (Knudsen and Hale 1965). Only 12% of beaver relocated on streams and 33% of beaver relocated in the lake and pothole areas remained at the release site (Knudsen and Hale 1965).

The relocation of aquatic rodents that are causing damage could result in damage problems at the release site or dispersal site. In this case, the original damage problem has simply been shifted from one property to another. If NCWS relocated the problem animal, NCWS could possibly be held liable for any subsequent damage caused by that animal.

Live-trapping and relocating aquatic rodents is biologically unsound and not cost-efficient (Wade and Ramsey 1986). The AVMA, the National Association of State Public Health Veterinarians, and the Council of State and Territorial Epidemiologists all oppose the relocation of mammals because of the risk of disease transmission, particularly for small mammals (Center for Disease Control 1990). Among animal advocacy groups there appears to be disagreement about relocating wildlife to alleviate damage. The People for the Ethical Treatment of Animals opposes relocation of problem beaver because they believe relocation is cruel (Redmon 1999, 2000). The Humane Society of the United States believes relocation is preferable to death, in some circumstances, but point out that relocation could be stressful and result in suffering or death (Bridgeland et al. 1997). The Humane

Society of the United States openly advocates relocating muskrats to alleviate damage but is less clear about beaver (Bridgeland et al. 1991).

It is the policy of the NCWRC not to relocate beaver because of the unavailability of appropriate release sites, biological and humaneness concerns related to poor survivorship of relocated animals, competition with established colonies, the potential for transmission of disease between populations, and the high probability that damage problems would be transferred from one site to another through relocation (C. Betsill, NCWRC, pers. comm.). NCWS did not consider this option in detail because of these same concerns.

Live-Capture and Kill Techniques Only.

Live-capture and kill techniques may be used as part of the IWDM approach to reduce aquatic rodent damage. Snares, foothold traps, or other devices may be used to live-capture beaver. While these tools are effective and efficient for capturing aquatic rodents, the use of additional methods (e.g., conibear-type traps and shooting) would be necessary to reduce damage in a cost-effective manner.

Dam Removal or Water Control Structures Only.

This alternative would direct NCWS to alleviate flooding damage by controlling the water levels without removing beaver. Dams would either be removed manually or with binary explosives. However, removing dams without removing the resident beaver is usually ineffective because beaver will quickly repair or replace the dam (McNeely 1995). Installing and maintaining water-level management devices or removing beaver dams on a daily or weekly basis may be cost prohibitive, and would not alleviate damage from gnawing or felling of trees.

Water-level management devices or pond levelers have been used for many years in many different states, with varying degrees of success. Various types of beaver pond levelers have been described (Arner 1964, Laramie and Knowles 1985, Lisle 1996, Roblee 1984) and installation of beaver pond levelers can be effective in reducing flooding in certain situations (Minn. Dept. Nat. Res. 1994, Miller and Yarrow 1994, Organ et al. 1996). However, a survey of Clemson Beaver Pond Levelers installed by WS in Mississippi revealed that only about 45% of levelers were successful (Nolte et al. 2000). Another study reported water-level management devices to be effective in only about 5% of flooding situations (Anonymous 1999). This is primarily because these structures were blocked by debris or siltation, and because the beaver often built a new dam nearby (McNeely 1995). If beaver are not removed, they may build dams upstream and downstream or block the device with mud and debris, rendering this method ineffective. Removal or reduction of the local beaver population, along with post-installation maintenance of the water-level management device itself, is usually required for this method to be effective (Nolte et al. 2000; E. Butler, USDA/APHIS/WS, pers. comm.; B. Sloan, USDA/APHIS/WS, pers. comm.).

Water-level management devices are most effective on wetlands lacking in-stream flow (B. Sloan, USDA/APHIS/WS, pers. comm.), but may be ineffective in beaver ponds in broad, low-lying areas (Organ et al. 1996). They may not be appropriate in streams or ditches with continuous flow because the volume of water is too great for the device to handle, and debris is continuously carried to the site. Also, water-level management devices may not be effective during periods of unusually high rainfall

or increased water flow because the device cannot handle the increased volume of water (Anonymous 1999, Wood et al. 1994).

The use of water-level management devices may require frequent maintenance, depending on the type of device used. Continued maintenance is necessary for the device to remain operational because stream flow, leaf fall, floods, and beaver activity will continuously bring debris to the water control device. This maintenance of water control devices can be expensive. The Maine WS program estimated annual maintenance costs at about \$350 per water-level management device, in addition to a cost of about \$250 - \$300 for construction and installation (E. Butler, USDA/APHIS/WS, pers. comm.). There may also be an annual costs to remove or reduce beaver populations to keep the devices operational (B. Sloan, USDA/APHIS/WS, pers. comm.). NCWS spent approximately \$900 per device to construct and install water-level management devices in North Carolina (NCWS unpubl. data).

The Beaver Deceiver is a water-level management device that attempts to prevent beaver from damming by eliminating environmental cues that stimulate damming at culverts and by making culverts less favorable as dam sites. This is accomplished by quieting, calming, and deepening the water in front of culverts and constructing an odd shaped fence that both excludes beaver from a large area around the upstream opening of the culvert and confuses them so that they do not construct a dam against the fence. The beaver deceiver has been developing since 1996 and has been effective in controlling beaver flooding in some situations. Preservation of wetland areas and fur resources for recreational trapping are benefits of using beaver deceivers (Lisle 1996, S. Lisle, Penobscot Nation, letter to J. Cromwell, WS, September 7, 2000).

NCWS would use water-level management devices as part of an integrated beaver management program at appropriate sites. However, the use of only water-level management devices would be insufficient to manage beaver damage throughout North Carolina. The Maine WS program installed over 160 water-level management devices in 1998. The primary benefit of the use of these devices in Maine is to minimize flooding damage while leaving beavers for fur trappers to remove during the regulated trapping season each year (E. Butler, USDA/APHIS/WS, pers. comm.). In Mississippi, the WS program commonly installs water-level management devices at sites where the landowner intends to hunt ducks or lease duck hunting rights on his land (B. Sloan, USDA/APHIS/WS, pers. comm.). Because there are few fur trappers in Mississippi, it is generally necessary to reduce beaver numbers annually at these sites to maintain the effectiveness of the devices (B. Sloan, USDA/APHIS/WS, pers. comm.). Thus, in both Maine and Mississippi, the use of water-level management devices is supplemented by the continual removal of beaver from the site and an additional benefit is received which helps to justify the expense (i.e. reserving beaver for the fur harvest, providing duck hunting sites). Also, the construction, installation, and maintenance costs of water control devices in Maine and Mississippi are funded, in part, by sources such as state wildlife agencies, county governments, [REDACTED], or private organizations (E. Butler, USDA/APHIS/WS, pers. comm., B. Sloan, USDA/APHIS/WS, pers. comm.). Without such financial assistance and the existence of additional benefits, water-level management devices alone would generally be ineffective to reduce or prevent damage.

No Damage Management Until Damage Reaches a Certain Threshold.

Some individuals may believe that NCWS should not conduct aquatic rodent damage management until economic losses become unacceptable or losses reach some predetermined "threshold" level. Although some losses can be expected and tolerated by most people and government entities, NCWS has the legal authority to respond to requests for wildlife damage management (Animal Damage Control Act of March 2, 1931, as amended (46 Stat. 1486; 7 U.S.C. 426-426c) and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988, Public Law 100-102, Dec. 27, 1987. Stat. 1329-1331 (7 U.S.C. 426c). People who request assistance from NCWS have decided that the WAC has been reached, while those who object frequently have no personal loss or liability from the presence of aquatic rodents. NCWS uses the Decision Model (Slate et al. 1992) discussed in Section 3.1.4 to determine appropriate strategies, and it is program policy to aid each requester to minimize losses. If damage management efforts are not initiated soon after a damage problem is detected, damages may escalate to excessive levels, or in the case of human health and safety, people may be injured or killed before the problem is resolved. Furthermore, if not given assistance, resource managers may resort to the use of illegal or unsafe methods (Walters 1996). In the Southern Utah Wilderness Alliance, et al. vs. Hugh Thompson, Forest Supervisor for the Dixie National Forest, et al., the United States District Court of Utah denied plaintiffs' motion for preliminary injunction. In part, the court found that a forest supervisor need only show that damage is probable to establish a need for wildlife damage management (U.S. District Court of Utah 1993).

Technical Assistance and Non-lethal Aquatic Rodent Damage Management with Lethal Management as a Last Resort.

This alternative was not evaluated in this EA because it would restrict NCWS and others to conducting non-lethal damage management before using lethal damage management. Verification of the methods used would be the responsibility of the NCWS. No standards exist to determine the diligence in applying non-lethal methods, nor are there standards to determine how many non-lethal methods or applications are necessary before the initiation of lethal damage management. Thus, only the presence or absence of non-lethal methods can be evaluated.

Conversely, under this alternative, technical assistance and operational non-lethal and lethal damage management are provided in the context of an IWDM approach to most efficiently and effectively resolve damage problems, and the WS Decision Model (Slate et al. 1992) is used to help determine the best approach for resolving wildlife damage. The current NCWS Program recognizes the importance of non-lethal methods as an important dimension of IWDM, and non-lethal methods are considered or used first in each damage management strategy, if applicable, as discussed above. These non-lethal methods are promoted through program directives, literature and in personal consultations with affected resource owners. Protection of resources is NCWS' objective, and NCWS is available to all who request assistance. Technical assistance and non-lethal information will continue to be provided by NCWS to anyone requesting that information.

The "*Technical Assistance and Non-lethal Aquatic Rodent Damage Management with Lethal Management as a Last Resort*" alternative does not allow for a timely full range of IWDM techniques to resolve wildlife damage problems and may compromise damage resolution in some cases (i.e., crop flooding, flooded roads, road beds, or human health and safety). In addition, considerations of

wildlife needs, including T&E Species and Species of Special Concern, are not included in this alternative.

Aquatic rodents play an important ecological role, creating valuable wetlands and wildlife habitat, as described in Section 1.2.1 and 1.2.3. NCWS works to educate the public about wildlife benefits as well as about wildlife damage management options. Education is an important part of NCWS' program because NCWS believes wildlife damage management is about finding "*balance*" or co-existence between the needs of people and needs of wildlife (USDA 1997). As requested, NCWS distributes informational leaflets and conducts demonstrations and presentations for property owners sustaining damage and other interested parties. Materials distributed and programs included information about the biology, ecology, legal status and benefits provided by aquatic rodents as well as non-lethal and lethal damage management methods to reduce damage.

Finding of No Significant Impact

The analysis in the EA indicates that there will not be a significant impact, individually or cumulatively, on the quality of the human environment as a result of this proposed action. I agree with this conclusion and therefore find that an EIS need not be prepared. This determination is based on the following factors:

1. Beaver, muskrat and nutria damage management, as conducted by WS in North Carolina, is not regional or national in scope.
2. The proposed action would pose minimal risk to public health and safety. Risks to the public from WS methods were determined to be low in a formal risk assessment (USDA 1997, Appendix P).
3. There are no unique characteristics such as park lands, prime farm lands, wetlands, wild and scenic areas, or ecologically critical areas that would be significantly affected. Built-in mitigation measures that are part of WS's standard operating procedures and adherence to laws and regulations will further ensure that WS activities do not harm the environment.
4. The effects on the quality of the human environment are not highly controversial. Although there is some opposition to wildlife damage management, this action is not highly controversial in terms of size, nature, or effect.
5. Based on the analysis documented in the EA and the accompanying administrative file, the effects of the proposed damage management program on the human environment would not be significant. The effects of the proposed activities are not highly uncertain and do not involve unique or unknown risks.
6. The proposed action would not establish a precedent for any future action with significant effects.
7. No significant cumulative effects were identified through this assessment. The number of

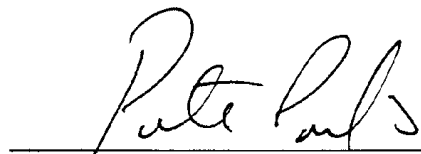
beaver, muskrat and nutria killed by WS, when added to the total known other take of both species, falls well within allowable harvest levels. The EA discussed cumulative effects of WS on target and non-target species populations and concluded that such impacts were not significant for this or other anticipated actions to be implemented or planned within the State.

8. The proposed activities would not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor would they likely cause any loss or destruction of significant scientific, cultural, or historical resources.
9. An informal consultation with the USFWS confirmed that the proposed action would not likely adversely affect any Federally listed T&E species. The proposed project would not adversely affect North Carolina State listed threatened or endangered species.
10. The proposed action would be in compliance with all federal, state, and local laws imposed for the protection of the environment.

Decision and Rationale

I have carefully reviewed the Environmental Assessment (EA) prepared for this proposal and the input from the public involvement process. I believe that the issues identified in the EA are best addressed by selecting Alternative 1 (Fully Integrated Aquatic Rodent Damage Management for all Public and Private Land (No Action/Proposed Action)) and applying the associated mitigation measures discussed in Chapter 3 of the EA. Alternative 1 is selected because (1) it offers the greatest chance at maximizing effectiveness and benefits to resource owners and managers while minimizing cumulative impacts on the quality of the human environment that might result from the program's effect on target and non-target species populations; (2) it presents the greatest chance of maximizing net benefits while minimizing adverse impacts to public health and safety; and, (3) it offers a balanced approach to the issues of humaneness and aesthetics when all facets of these issues are considered. The comments identified from public involvement were minor and did not change the analysis. Therefore, it is my decision to implement the proposed action as described in the EA.

Copies of the EA are available upon request from the North Carolina Wildlife Services Office, 6213-E Angus Drive, Raleigh, North Carolina 27617.



Pete Poulos, Acting Regional Director
APHIS-WS Eastern Region

3/4/02
Date

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APPENDIX A

Response to Comments to the Environmental Assessment for Aquatic Rodent Damage Management in North Carolina

WS received twenty comment letters from the public involvement process and review of the pre-decisional EA. NEPA requires that proper consideration be given to all reasonable points of view, particularly as they may relate to the issues being considered. In this light, it is important to consider and address concerns or criticisms that may arise. Appendix A is a summary of comments received from review of the pre-decisional EA, with the corresponding WS responses.

Issue 1: The Wildlife Services (WS) program has potential to adversely impact beaver created wetland habitats.

Program Response: The WS Aquatic Rodent Damage Management (ARDM) program does not adversely affect beaver created wetland habitats. As described in Chapter 1 of the Environmental Assessment (EA), WS recognizes that beaver created wetlands are a valuable natural resource and have economic and environmental benefits. The beaver created impoundments that WS removes are normally from recent beaver activity and have not been in place long enough to take on the qualities of a true wetland. A description of wetland characteristics are presented in Appendix C of the EA. As stated in Section 4.2.1, Appendix B and Appendix C of the EA, WS ARDM activities are regulated by applicable wetland laws and regulations, including the Clean Water Act. WS only removes blockages and dams created by beavers under Nationwide Permits, Section 404 permits, or exemptions as permitted by the Clean Water Act. WS compliance with wetland protection laws and regulations assures that WS activities will not adversely affect wetland habitats.

Issue 2: The Environmental Assessment (EA) does not adequately comply with the National Environmental Policy Act (NEPA).

Program Response: WS follows all applicable laws, regulations, and guidelines in analyzing potential impacts of their actions, including those established by NEPA. In making an informed decision of potential environmental impacts, WS uses the best available scientific information, data and expert advise. Appendix A of the EA provides a list of 106 documents that are used and referenced throughout the EA for analyzing potential impacts of the proposed program and Chapter 5 of the EA provides a list of the persons consulted in the development of the EA. Potential impacts are systematically analyzed in Chapter 4 of the EA. Each issue is fully explained and analyzed against each alternative to allow the reader an objective way to evaluate potential outcomes of each alternative. By conducting such a systematic and objective analysis, and using the best available scientific information, data and expert advise, WS is able to make an informed decision as required by NEPA.

Issue 3: *How do landowners and managers determine the cost of aquatic rodent damage they report to WS.*

Program Response: Landowners and managers report aquatic rodent damage based on the actual value or their best estimate of the actual value of resources lost. If a landowner or manager is not able to accurately estimate resource value, WS uses a Damage Data Worksheet based on documented current average resource values to determine the value of resources damaged or saved.

Issue 4: *The EA is inadequate and that a full Environmental Impact Statement (EIS) is warranted.*

Program Response: WS has determined that the analysis in the EA showed no significant impact on the quality of the human environment. The EA took a hard look at the need for action, the issues, alternatives, and environmental consequences, and resulted in a FONSI that discussed, under each of the ten CEQ points of significance, why each was not significant. WS carefully considered all comments from respondents to the public involvement efforts. The agency followed CEQ NEPA regulations, and Agency NEPA implementing procedures. Thus, the EA resulted in a FONSI that specified why an EIS was not required.

Issue 5: *Cooperator names and identities should not be redacted from the EA.*

Program Response: The redaction of cooperator names and identities from the EA is in compliance with a court ordered injunction granted to the American Farm Bureau and Texas Farm Bureau (February 9, 2000), which states that WS is restrained and prohibited from releasing to third parties any private information. The injunction identifies private information as "any information that allows the recipient of it to obtain or deduce the specific identity or personal identifying information of the entities who have requested, executed cooperative agreements with or otherwise allowed WS to enter their property for any purpose." Third parties are "individuals, groups, agencies, including but not limited to animal rights groups." Therefore, cooperators' private information has been removed from the EA.

Issue 6: *Beavers should be utilized by WS as a means of creating and restoring wetland habitat.*

Program Response: The use of beavers by WS to create and restore wetland habitat is outside the scope of this EA and WS' jurisdiction. The EA evaluates planned ARDM to protect resources and human health and safety in North Carolina, not the creation or restoration of wetland habitat. WS is directed and authorized by law to protect American resources from damage associated with wildlife by preventing or reducing wildlife caused damage.

Issue 7: *WS should create a program which offers an incentive for people to maintain beavers and wetlands on their properties.*

Program Response: A program which offers an incentive for people to maintain beavers and wetlands on their properties is outside the scope of this EA and WS' jurisdiction. The EA evaluates planned ARDM to protect resources and human health and safety in North Carolina, not the maintenance of beaver populations or wetlands. WS is directed and authorized by law to protect American resources from damage associated with wildlife by preventing or reducing wildlife caused damage.

Issue 8: *The effectiveness of WS Aquatic Rodent Damage Management (ARDM) activities is not discussed in the EA.*

Program Response: The effectiveness of ARDM in North Carolina is discussed in Section 1.1.1 of the EA. NCWS has a nine-year track record of providing excellent aquatic rodent damage management service to cooperators in North Carolina. A survey of over 300 cooperators in 1997 showed that the vast majority of cooperators were highly satisfied with the aquatic rodent damage management services provided by NCWS. From FY1996 to FY2001 NCWS saved landowners and managers an annual average of \$6.04 in resources for every \$1 spent on ARDM.

Issue 9: *Areas where potential aquatic rodent problems may arise should be identified.*

Program Response: Site specificity is discussed in Section 1.9.5 of the EA. Similar to other damage management organizations (fire departments, police, emergency clean-up organizations, insurance companies, etc) WS can predict some possible locations and types of needs. WS can at times predict potential ARDM based upon historical damage and, upon request, in those situations implement preventive actions to reduce risks of damage and conflicts. However, WS will never be able to predict where the damage will occur in all situations, nor be able to prevent it without being far more destructive than is prudent. This would be like the fire department predicting where the next fire will occur. The problem occurs when trying to predict exactly which location and which animals are going to be specifically involved before the damage situation is created.

Issue 10: *The EA fails to analyze impacts on water quality/quantity and streams.*

Program Response: WS has determined that water quality/quantity would not be adversely impacted by any of the alternatives analyzed in the EA (USDA 1997). As stated in Section 4.2.1, Appendix B and Appendix C of the EA, WS ARDM activities are regulated by applicable wetland laws and regulations, including the Clean Water Act. WS compliance with wetland protection laws and regulations assures that WS activities will not adversely affect water quality/quantity.

Beaver dams are constructed from natural materials, such as logs, sticks, leaves and mud, that beaver gather from the surrounding area. When beaver dams are removed to reduce flood waters and maintain existing stream channels and drainage patterns, these materials are dislodged and returned to the surrounding area. Beaver dam removal events conducted by WS, either manually or using explosives, are virtually identical to natural phenomena that commonly occur during heavy rains. During these natural events, large quantities of water flow through beaver impoundments and frequently the dams are washed out and the dam material is returned to the surrounding area. The impoundments that WS removes are normally from recent beaver activity and have not been in place long enough to take on the qualities of a true wetland (i.e., hydric soils, aquatic vegetation, preexisting function). Beaver dam breaching by hand or with binary explosives does not affect the substrate or the natural course of the stream but merely returns the area to its preexisting condition with similar flows and circulations.

Issue 11: *The EA fails to analyze impacts on fish.*

Program Response: WS recognizes that fish are important natural resources in North Carolina.

Aquatic rodents have both beneficial and detrimental impacts to fish resources. These impacts are discussed in Section 1.2 of the EA. Beaver impacts on trout habitat have been a major concern of fisheries managers since at least 1948 when Evans (1948) suggested a continued increase in beaver populations in Minnesota would probably result in deterioration of streams for trout. Patterson (1951) found that beaver impoundments in the Peshtigo River Watershed caused significant negative impacts to trout habitat by raising water temperatures, destroying immediate bank cover, changing water and soil conditions, and silting of spawning areas. The Wisconsin Department of Natural Resources guidelines for management of trout stream habitat stated that beaver dams are a major source of damage to trout streams (Churchill 1980, White and Brynildson 1967). More recent studies have documented improvements to trout habitat upon removal of beaver dams. Avery (1992) found that wild brook trout populations in tributaries to the North Branch of the Pemebonwon River in northeastern Wisconsin improved considerably following the removal of beaver dams. Also, the species abundance, species distribution, and total biomass of non-salmonids increased following the removal of beaver dams (Avery 1992). Following beaver and dam removal for two consecutive years on Little Hay Creek in east-central Minnesota, Newman et.al (1993) documented substantial increases in trout density, trout biomass as well as non-trout species diversity and abundance. In addition, higher substrate diversity, resulting in more favorable spawning conditions were found following beaver and dam removal.

WS ARDM effects on non-target wildlife species, including fish resources, are analyzed in detail in Chapter 4 of the EA for each of the alternatives.

Issue 12: The benefits of beaver created wetlands are not included in the EA.

Program Response: WS recognizes that beaver created wetlands are a valuable natural resource and have economic and environmental benefits. The EA went into detail to discuss the benefits of beaver activities and used information provided by commentators to develop that section (Section 1.2.1 of the EA). WS presented a balanced approach to beaver damage management, and discussed both the benefits that beaver provide to the environment and the damage they cause.

Issue 13: An increase in live trapping will decrease the incidental mortality of non-target wildlife species, including the river otter.

Program Response: It is true that an increased use of live trapping may decrease incidental mortality of nontarget species. However, the primary live trapping methods for aquatic rodents are limited to snares and Hancock traps, and WS believes that other methods are necessary to resolve aquatic rodent damage problems effectively and efficiently. As stated in Section 3.5.6 of the EA, live-capture and kill techniques may be used as part of the IWDM approach to reduce aquatic rodent damage. While these tools are effective and efficient for capturing aquatic rodents, the use of additional methods (e.g., conibear-type traps and shooting) would be necessary to reduce damage in a cost-effective manner. The pros and cons of using Hancock traps are discussed in Section 3.2.2. Hancock traps may cause serious and debilitating injury to otters (Blundell et al. 1999). Specific information regarding the selectivity of traps and nontarget take by WS is provided in Section 4.2.1 of the EA.

Issue 14: How will WS determine the appropriate response and strategy to each request for

assistance?

Program Response: As described in Section 3.1.4 of the EA, WS uses a decision model which involves evaluating each request for assistance, taking action and evaluating and monitoring results of the actions taken. Furthermore, as described in Section 3.1.5 of the EA, WS follows a "Co-managerial approach" to solving wildlife damage. Local decision makers have the final decision as to which available methods will be used and may be based on a comparison of benefits versus damage or the cost of implementing each management strategy.

Issue 15: *There is no discussion of non-target species other than T&E species and pets.*

Program Response: The effects of WS activities on non-target species is described and analyzed in Chapters 2 and 4 of the EA. In Section 2.2.2, WS identifies species that may potentially be affected by WS actions and Section 4.2 provides a systematic approach to analyzing potential impacts.

Issue 16: *Harvesting beavers in any manner negates the natural regulation of population density.*

Program Response: This issue is discussed in Section 4.2.1 of the EA under the beaver population impact analysis.

Issue 17: *Recreational trappers and private animal damage control agents should be used to manage aquatic rodent damage in North Carolina.*

Program Response: WS recognizes the valuable ARDM services that recreational trappers and animal damage control agents provide. This issue is discussed in Section 2.4.3 of the EA.

Issue 18: *WS should not be involved in managing North Carolina wildlife populations.*

Program Response: WS objective is not to manage wildlife populations in North Carolina, but rather to address requests for assistance to reduce damage at specific sites. WS is directed and authorized by law to protect American resources from damage associated with wildlife by preventing or reducing wildlife caused damage. The NCWRC is specifically charged by the General Assembly with the management of North Carolina's wildlife resources, including the management of wildlife populations (see Appendix B of the EA). All WS wildlife damage management activities are in compliance with relevant laws, regulations, policies, orders and procedures, including those established by the NCWRC to manage wildlife populations.

Issue 19: *WS should not be involved in managing aquatic rodent damage in North Carolina.*

Program Response: WS was established by Congress as the agency responsible for providing wildlife damage management to the people of the United States. Wildlife damage management is an appropriate sphere of activity for government programs, since aspects of wildlife damage management are a government responsibility and authorized and directed by law. WS legislative mandate is described in Appendix B of the EA.

Issue 20: *ARDM activities should not be paid for by taxpayer monies, but should be a fee based service paid by the affected landowners.*

Program Response: Funding for WS comes from a variety of sources in addition to federal appropriations. State agency funds, county funds, city funds, private funds, and other federal

agency funds are applied to the program under Cooperative Agreements. Federal, state, and local officials have decided that wildlife damage management should be conducted by appropriating funds.

Issue 21: *The EA lacks information on the number and types of water control devices that have been installed by WS to manage aquatic rodent damage.*

Program Response: From 1994 to 2001 NCWS installed 23 Clemson Beaver Pond Levelers. Fifteen of these levelers failed due to theft, vandalism, or the construction of additional beaver dams. The eight that are still operational require periodic maintenance, additional beaver dam removal, and some beaver removal to remain operational. As discussed in Appendix D of the EA, it is usually necessary to manage the local beaver population using lethal techniques and to do periodic maintenance on water control structure to maintain operational water control structures.

Issue 22: *Traps are nonselective, mechanical devices.*

Program Response: As discussed in Section 3.2.2 and Appendix D, traps can be selective when properly used by wildlife professionals. Specific information regarding the selectivity of traps and nontarget take by WS is provided in Section 4.2.1 of the EA.

Issue 23: *Long term nonlethal ARDM methods are more cost effective than lethal ARDM methods.*

Program Response: As discussed in Section 3.4.1 nonlethal methods will be used as part of a fully integrated ARDM program. Preference will be given to nonlethal methods whenever possible. However, in many situations it will be necessary to use lethal methods. Nonlethal methods may be cost effective in some situations, but they are not cost effective if they do not resolve the damage situation. NCWS believes that in many situations, lethal methods are the most effective and efficient means of resolving aquatic rodent damage problems. Exclusion devices are useful in situations where a limited number of trees or ornamentals are threatened, but would not be effective in situations involving extensive tracts of timber. Water control devices may be effective in some situations, but in situations involving large numbers of beaver and numerous beaver dams, water control structures would not be practical or effective. As stated in Appendix D of the EA, it is usually necessary to use lethal methods in conjunction with water control devices to achieve success. Beaver dam removal is generally not effective without the prior application of lethal techniques.

Issue 24: *Drowning is not euthanasia; kill traps are cruel and inhumane.*

Program Response: This issue is discussed in Section 2.2.6 of the EA.

Issue 25: *WS should follow the AVMA's guidelines for euthanasia.*

Program Response: This issue is discussed in Sections 2.2.6 and 3.6 of the EA.

Issue 26: *Beaver should be relocated.*

Program Response: This issue is discussed in Section 3.5.5 of the EA.

Issue 27: *What is the Beaver Management Assistance Program (BMAP)?*

Program Response: The North Carolina legislature in 1992 created the Beaver Damage Control

Advisory Board with the charge to develop, implement, and oversee a program to manage beaver damage on public and private lands. The nine-member Advisory Board, composed of representatives from state and federal agencies and the private sector, established the Beaver Management Assistance Program (BMAP). A major goal of the BMAP is to educate the public and participating landholders about the best strategies for managing beaver damage including the pros and cons of removing beaver or using pond levelers, exclusion, or other non-lethal techniques. Wildlife specialists conduct programs and workshops on beaver damage management and beaver ecology for civic and professional organizations, schools, landholder groups, and others. When beaver damage is intolerable, wildlife specialists alleviate the damage by removing the offending animals and their dams using humane and environmentally acceptable methods or by using pond levelers, exclusion, or other non-lethal techniques.

The BMAP assists the [REDACTED], city and county governments, soil and water conservation districts, private landholders, and others with beaver problems. The program is run by USDA Wildlife Services through a cooperative agreement with the [REDACTED]. Funding comes from state, county, federal, and private sources. All counties are eligible to participate in the program through an annual cost share assessment. Individuals residing in these counties may obtain assistance with beaver damage management. Statewide assistance with beaver damage problems is also provided to the [REDACTED]. Participants in the program pay a cost share for services.

Issue 28: *Have non-cooperators been surveyed regarding their views of NCWS ARDM activities?*

Program Response: No official survey of non-cooperators has been conducted. However, the public comment process for this EA has allowed all interested parties, whether cooperating or non-cooperating, to express their views and concerns regarding NCWS ARDM activities.

Issue 29: *In what way do detrimental impacts sometimes outweigh benefits? How is it measured?*

Program Response: This issue is discussed in Section 1.2.2.

Issue 30: *The EA does not include information regarding the number of sites at which ARDM has been conducted.*

Program Response: Since NC WS responds to all requests for assistance, the number of requests for assistance provided in Section 1.3 of the EA is equal to the total number of projects on which NC WS has provided assistance with ARDM. These projects include both technical and direct assistance.

Issue 31: *What is your definition of a wetland?*

Program Response: This issue is addressed in the second and third paragraphs of Appendix C.

Issue 32: *The EA lacks information regarding how frequently specific damage management*

methods are used to alleviate aquatic rodent damage.

Program Response: A complete list of methods considered and used to alleviate aquatic rodent damage at each specific damage site is not available. WS uses an IWDM approach and the WS Decision Model as described in Section 3.1 of the EA when selecting the appropriate response to each request for assistance. NCWS personnel are frequently contacted after requesters have tried various techniques and found them to be inadequate for reducing damage to an acceptable level. In many cases, non-lethal methods are attempted by the requestor prior to contacting WS for assistance or are used simultaneously along with WS lethal control activities. Therefore, numerous methods and strategies (non-lethal and lethal) are often considered and used by cooperators before actions are taken by WS. NCWS personnel assess the problem and evaluate methods for their availability (legal and administrative) and suitability based on biological, economic and social considerations. Following this evaluation, the methods deemed to be practical and effective for the situation are formed into a management strategy. WS believes that an understanding of the thought and decision making process used to determine the most appropriate strategy for each situation is more important than a simple list or table showing the number of times each method is used.

Issue 33: *Trapping can increase muskrat populations as compensatory reproduction occurs.*

Program Response: As discussed in Section 4.2.1, under Beaver Population Impact Analysis, NCWS' objective is not to manage aquatic rodent populations in North Carolina, but rather to address requests for assistance to reduce damage at specific sites. While the removal of aquatic rodents may cause an increase in reproduction in a localized area, and while dispersing aquatic rodents may recolonize management areas, NCWS believes that with periodic maintenance these factors will not hinder effective damage management. Furthermore, while muskrat fecundity may be density dependent and lower densities may cause an increase in litter size, high populations may produce a surplus that will be removed by predation and disease (Boutin and Birkenholz 1987), if not by trapping.

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